

RE: ERMI reports for Call 3 and Call 4 Li, Charles to: Stephen Vesper

04/24/2009 04:33 PM

Hi, Steve,

Ok. I will issue the reports.

I only noticed that there are a lot of fungi being detected in the dusts, perhaps, samples from south, Kansas City.

A. versicolor is high in R95. I compared with national average, and the highest number. The ERMI values for the duplicate runs/R95 are close and comparable (within \pm 1 logs).

Thanks

Charlie
Quanyi" Charlie" Li Ph.D.
PCR Laboratory Director
EMSL Analytical, Inc
107 Haddon Ave, Westmont, NJ 08108
Tel: 800-220-3675 ext.1283
Fax: 856-858-0648
Email: cli@emsl.com

----Original Message---From: vesper.stephen@epamail.epa.gov [
mailto:vesper.stephen@epamail.epa.gov]
Sent: Friday, April 24, 2009 1:12 PM
To: Li, Charles

Subject: Re: ERMI reports for Call 3 and Call 4

Hi Charlie,

I have not run these samples myself, so I do not know anything about them. However, I do not see any unusual results.

I was glad to see you picked-up A. ochraceous at least in one sample KC2607. So I hope that means everything is OK with that assay.

Thanks.

Steve

p.			
	id		

107 Haddon Ave., Westmont, NJ 08108 Tel: 800-220-3675 Fax: 856-858-0648

Client: US EPA

26 W M. L. King Drive

Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call # 3

EMSL Order ID:

370903758

Date Received: Date Analyzed:

4/22/2009 4/23/2009

Date Reported:

4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-1	3758-2	0750.0	
Client Sample ID	KC2597		3758-3	3758-4
Sample Location	102337	KC2598	KC2602	KC2607
Sample size		-	111	-
EPA 36 Species Identification	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Aspergillus flavus	ND	ND		1 N-2
Aspergillus fumigatus	ND	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ND	ND
Aspergillus niger	17	ND	ND	ND
Aspergillus ochraceus	ND	6	ND	91
Aspergillus penicillioides	ND ND	ND	ND	533
Aspergillus restrictus	ND ND	35	ND	ND
Aspergillus sclerotiorum	15	ND	4	4
Aspergillus sydowii	7	8	14	7
Aspergillus unguis	4	ND	167	75
Aspergillus versicolor	390	2	3	13
Eurotium (A.) amstelodami	288	93	3,138	570
Aureobasidium pullulans	139	58	437	991
Chaetomium globosum	1,368	1,261	4,323	12,167
Cladosporium sphaerospermum	6	3	20	10
Paecilomyces variotii	32	8	88	93
Penicillium brevicompactum	4	9	13	10
Penicillium contentium	ND	ND	ND	ND
Penicillium corylophilum	139	ND	ND	304
Penicillium crustosum (group2)	ND	ND	ND	ND
Penicillium purpurogenum	ND	ND	ND	2
Penicillium spinulosum	ND	ND	ND	43
Penicillium variabile	2	ND	9	5
Scopulariopsis brevicaulis	2	ND	6	ND
Scopulariopsis chartarum	ND	ND	1	ND
Stachybotrys chartarum	ND	ND	11	ND
Trichoderma viride	ND	17	ND	ND
Wallemia sebi	234	58	118	75
Sum of the Logs	19.5	15.6	23.4	30.0

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based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

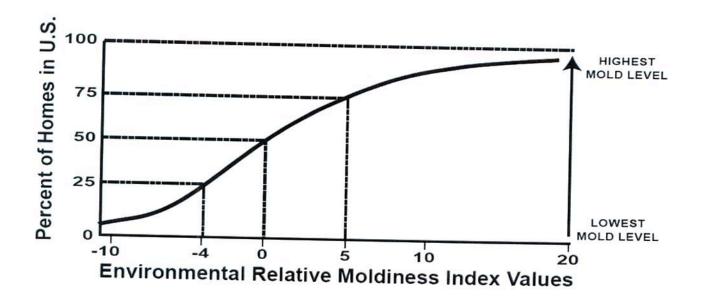
ERMI Interpretation* (see graph and description below)	Level 3	Level 3	Level 4	Level 4
ERMI Value:	5	2	9	17
Sum of the Logs	14.8	13.5	14.4	12.9
Rhizopus stolonifer	ND	ND	ND	ND
Penicillium chrysogenum	194	72	8	5
Mucor and Rhizopus group	302	6	ND	76
Epicoccum nigrum	531	1,227	4,938	ND
Cladosporium herbarum	14	23	36	36
Cladosporium cladosporioides II	ND	ND	7	10
Cladosporium cladosporioides l	428	498	545	595
Aspergillus ustus	1	ND	14	14
Acremonium strictum Alternaria alternata	387	479	1,109	842
Group 2	7	11	3	8
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Sample Location	-	459		- F Dust
Client Sample ID	KC2597	KC2598	KC2602	KC2607
Lab Sample Number	3758-1	3758-2	3758-3	3758-4

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano Li

Or Approved EMSL Signatory



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Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-5	3758-6	0750 7	
Client Sample ID	KC2618		3758-7	3758-8
Sample Location	1.02010	KC2620	KC2621	KC2624
Sample size	Ema Dunt		-	.=
EPA 36 Species Identification	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Aspergillus flavus	ND	2007		
Aspergillus fumigatus	ND	ND	ND	ND
Aspergillus niger	48	ND	ND	ND
Aspergillus ochraceus	1	15	110	2
Aspergillus penicillioides	ND	ND	92	ND
Aspergillus restrictus	ND	ND	ND	11
Aspergillus sclerotiorum	6	ND	12	ND
Aspergillus sydowii	ND	ND	ND	10
Aspergillus unguis	131	ND	122	7
Aspergillus versicolor	ND	2	5	2
Eurotium (A.) amstelodami	1,698	165	2,721	194
Aureobasidium pullulans	643	100	140	23
Chaetomium globosum	5,090	5,195	33,327	7,154
Cladosporium sphaerospermum	30	5	20	2
Paecilomyces variotii	97	20	39	6
Penicillium broviosmasst	7	ND	431	1
Penicillium brevicompactum	3	ND	ND	ND
Penicillium corylophilum	19	ND	120	7
Penicillium crustosum (group2)	ND	ND	ND	ND.
Penicillium purpurogenum	ND	ND	ND	ND
Penicillium spinulosum	106	ND	89	ND
Penicillium variabile	20	1	30	ND
Scopulariopsis brevicaulis	2	3	ND ND	
Scopulariopsis chartarum	3	ND	2	ND
Stachybotrys chartarum	5	ND	2	ND
Trichoderma viride	38	ND	62	ND
Wallemia sebi	130	72	64	1 8
Sum of the Logs	28.9	13.9	33.2	13.8

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based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

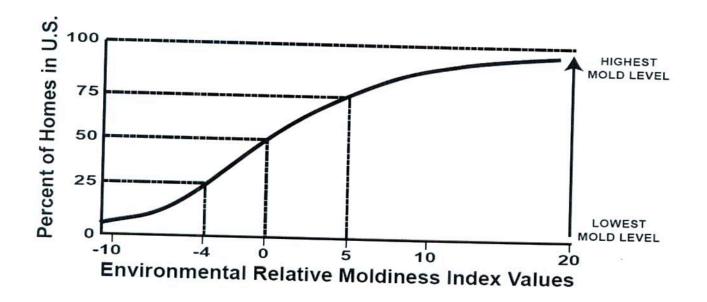
ERMI Interpretation* (see graph and description below)	Level 4	Level 3	Level 4	Level 2
ERMI Value:	11	2	17	-1
Sum of the Logs	17.6	11.9	16.5	15.1
Rhizopus stolonifer	ND	1	ND	4
Penicillium chrysogenum	214	131	8	3
Mucor and Rhizopus group	63	1	20	1
Epicoccum nigrum	4,654	60	3,946	17,071
Cladosporium herbarum	49	25	34	80
Cladosporium cladosporioides II	ND	ND	7	ND
Cladosporium cladosporioides l	746	678	1,908	1,344
Aspergillus ustus	10	ND	27	6
Acremonium strictum Alternaria alternata	972	827	907	977
Group 2	17	6	5	10
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample Location Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Client Sample ID	- KG2010	-	7.=	4 5 7
Lab Sample Number	3758-5 KC2618	3758-6 KC2620	3758-7 KC2621	3758-8 KC2624

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Charlie Li Ph.D., Lab Director

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Or Approved EMSL Signatory



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4/20/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-9	3758-10	=	-
Client Sample ID	KC2626	KC2627	-	€
Sample Location	-	9 5 1	=	-
7 A 20 M 300 M	5mg Dust	5mg Dust	-	-
Sample size		8	200 25 Y 2	11.7 4
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Group 1				
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	250	-
Aspergillus niger	6	14		-
Aspergillus ochraceus	ND	ND	*	-
Aspergillus penicillioides	22	30	•	-
Aspergillus restrictus	ND	ND	(2)	(-)
Aspergillus sclerotiorum	ND	2	-	-
Aspergillus sydowii	ND	21	9	R#I
Aspergillus unguis	ND	ND	5	12
Aspergillus versicolor	618	145		
Eurotium (A.) amstelodami	30	91		
Aureobasidium pullulans	2,407	1,589		-
Chaetomium globosum	ND	3	2	-
Cladosporium sphaerospermum	16	4	2	-
Paecilomyces variotii	ND	36	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	17	-
Penicillium crustosum (group2)	ND	ND	100	-
Penicillium purpurogenum	ND	ND	121	
Penicillium spinulosum	ND	28	120	-
Penicillium variabile	ND	2	•	•
Scopulariopsis brevicaulis	ND	ND		
Scopulariopsis chartarum	1	ND		120
Stachybotrys chartarum	ND	ND		-
Trichoderma viride	ND	4	0.80	
Wallemia sebi	14	2	•	-
Sum of the Logs	12.1	16.7		•

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Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

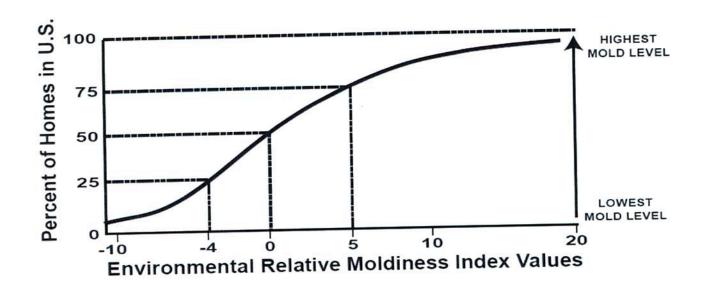
based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

ERMI Interpretation* (see graph and description below)	Level 2	Level 3		•3
ERMI Value:	0	3	-	-
Sum of the Logs	12.3	13.4	-	-
Penicillium chrysogenum Rhizopus stolonifer	98 ND	93 ND		
Mucor and Rhizopus group	2,639 ND	5,561	-	:•:
Cladosporium herbarum Epicoccum nigrum	29	26	-	-
Cladosporium cladosporioides II	ND ND	386 ND	•	Ħ
Cladosporium cladosporioides I	ND 461	ND		2
Alternaria alternata Aspergillus ustus	540	236	=	_
Acremonium strictum	1	3	-	
Group 2	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample size EPA 36 Species Identification	5mg Dust	5mg Dust	95 9 -	-
Sample Location	-	KC2627	V -	-
Lab Sample Number Client Sample ID	3758-9 KC2626	3758-10	_	V.T.

ND=None detected; the result is below the analytical detection limit or not present.

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Or Approved EMSL Signatory



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Sample size	5mg Dust	5mg Dust	- 	
EPA 36 Species Identification	No.	Jing Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Aspergillus flavus	ND	ND	ND	
Aspergillus fumigatus	ND	ND ND	ND	ND
Aspergillus niger	17	6	ND	ND
Aspergillus ochraceus	ND ND	ND ND	ND	91
Aspergillus penicillioides	ND ND	144, 150 A	ND	533
Aspergillus restrictus	ND ND	35 ND	ND	ND
Aspergillus sclerotiorum	15	ND	4	4
Aspergillus sydowii	7	8	14	7
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Penicillium spinulosum	ND	ND	ND	2
Penicillium variabile	ND	ND	ND	43
Scopulariopsis brevicaulis	2	ND	9	5
Scopulariopsis chartarum	2	ND	6	ND
Stachybotrys chartarum	ND	ND	1	ND
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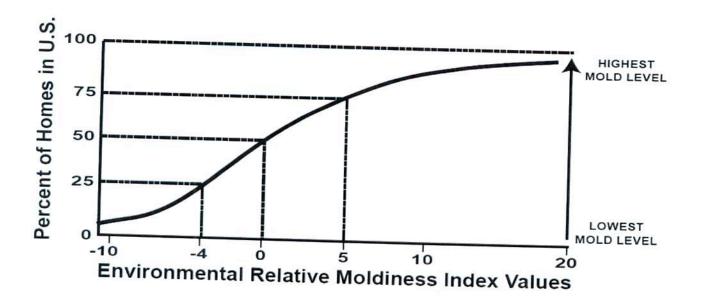
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Cladosporium cladosporioides II	ND	ND	7	10
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26 W M. L. King Drive

Cincinnati, OH 45268

Attention: Dr. Steve Vesper Project: Kansas City (KC), Call # 3 EMSL Order ID:

370903758

Date Received: Date Analyzed: 4/22/2009 4/23/2009

Date Reported: 4/24/2009 4/20/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-5	3758-6	0750 7	
Client Sample ID	KC2618	100000000000000000000000000000000000000	3758-7	3758-8
Sample Location	1102010	KC2620	KC2621	KC2624
Sample size		-	-	-
EPA 36 Species Identification	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Aspergillus flavus	ND		10000	
Aspergillus fumigatus	ND	ND	ND	ND
Aspergillus niger	48	ND	ND	ND
Aspergillus ochraceus	0.000	15	110	2
Aspergillus penicillioides	ND	ND	92	ND
Aspergillus restrictus	ND	ND	ND	11
Aspergillus sclerotiorum	6	ND	12	ND
Aspergillus sydowii	ND	ND	ND	10
Aspergillus unguis	131	ND	122	7
Aspergillus versicolor	ND	2	5	2
Eurotium (A.) amstelodami	1,698	165	2,721	194
Aureobasidium pullulans	643	100	140	23
Chaetomium globosum	5,090	5,195	33,327	7,154
Cladosporium sphaerospermum	30	5	20	2
Paecilomyces variotii	97	20	39	6
Penicillium brevicompactum	7	ND	431	1
Penicillium condentii	3	ND	ND	ND
Penicillium corylophilum	19	ND	120	7
Penicillium crustosum (group2)	ND	ND	ND	, ND
Penicillium purpurogenum	ND	ND	ND	ND
Penicillium spinulosum	106	ND	89	ND
Penicillium variabile	20	1	30	ND ND
Scopulariopsis brevicaulis	2	3	ND	ND ND
Scopulariopsis chartarum	3	ND	2	ND ND
Stachybotrys chartarum	5	ND	2	
Trichoderma viride	38	ND	62	ND
Wallemia sebi	130	72	64	1
Sum of the Logs	28.9	13.9	33.2	13.8

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370903758 EMSL Order ID: Client: US EPA 4/22/2009 Date Received: 26 W M. L. King Drive 4/23/2009 Date Analyzed: Cincinnati, OH 45268 4/24/2009 Date Reported:

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call #3

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

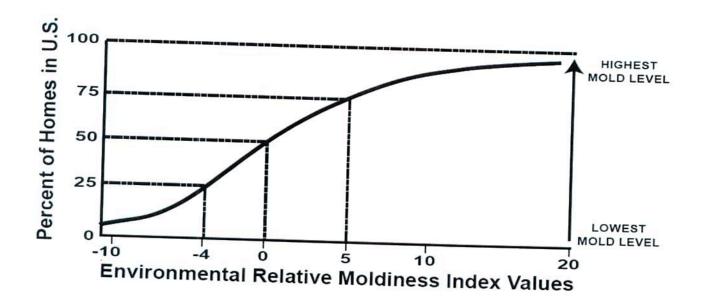
ERMI Interpretation*	Level 4	Level 3	Level 4	Level 2
ERMI Value:	11	2	17	-1
Sum of the Logs	17.6	11.9	16.5	15.1
Rhizopus stolonifer	ND	1	ND	4
Penicillium chrysogenum	214	131	8	3
Mucor and Rhizopus group	63	1	20	1
Epicoccum nigrum	4,654	60	3,946	17,071
Cladosporium herbarum	49	25	34	80
Cladosporium cladosporioides l Cladosporium cladosporioides Il	ND	ND	7	ND
Aspergillus ustus	746	678	1,908	1,344
Alternaria alternata	10	ND	27	6
Acremonium strictum	972	827	907	977
Group 2	17	6	5	10
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample Location Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Client Sample ID	KC2618	KC2620	KC2621	-
Lab Sample Number	3758-5	3758-6	3758-7	3758-8 KC2624

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano Li

Or Approved EMSL Signatory



Based on preliminary data published by the US EPA (chart above), the following ERMI levels can help predict whether an indoor environment is moldy. As research progresses, forthcoming data may change this interpretation

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Level 4 = Buildings with an ERMI in the 4th quartile have the greatest likelihood of having a mold problem.

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For further technical information regarding the development of the Environmental Relative Moldiness Index refer to the April 2006 issue of "The Synergist" pages 39-43 or www.epa.gov/iaq

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Client: US EPA

26 W M. L. King Drive Cincinnati, OH 45268

Attention: Dr. Steve Vesper

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EMSL Order ID: 370903758

 Date Received:
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4/20/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-9	3758-10	-	3. 5
Client Sample ID	KC2626	KC2627	.	0 = 5
Sample Location	-	-	-	2
CONTRACTOR	5mg Dust	5mg Dust	-	2
Sample size	only Dust	A 200 AV		lla/ ma dust
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Group 1				
Aspergillus flavus	ND	ND	(#C)	
Aspergillus fumigatus	ND	ND	6 <u>2</u> 8	1=1
Aspergillus niger	6	14	3	1=0
Aspergillus ochraceus	ND	ND	5973	
Aspergillus penicillioides	22	30	6.78	
Aspergillus restrictus	ND	ND	-	(<u>-</u>
Aspergillus sclerotiorum	ND	2	-	-
Aspergillus sydowii	ND	21	-	5:
Aspergillus unguis	ND	ND	=	-
Aspergillus versicolor	618	145	-	-
Eurotium (A.) amstelodami	30	91	5	-
Aureobasidium pullulans	2,407	1,589	:5\	-
Chaetomium globosum	ND	3	-	-
Cladosporium sphaerospermum	16	4	-	-
Paecilomyces variotii	ND	36	-	(5 7).
Penicillium brevicompactum	ND	ND	7=7	170
Penicillium corylophilum	ND	ND	121	(=s)
Penicillium crustosum (group2)	ND	ND		1-3
Penicillium purpurogenum	ND	ND		-
Penicillium spinulosum	ND	28	-	1.5
Penicillium variabile	ND	2	-	9.7
Scopulariopsis brevicaulis	ND	ND	¥	-
Scopulariopsis brevicadis Scopulariopsis chartarum	1	ND	2	
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	4	-	-
Wallemia sebi	14	2		-
Sum of the Logs	12.1	16.7	-	

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4/23/2009 4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

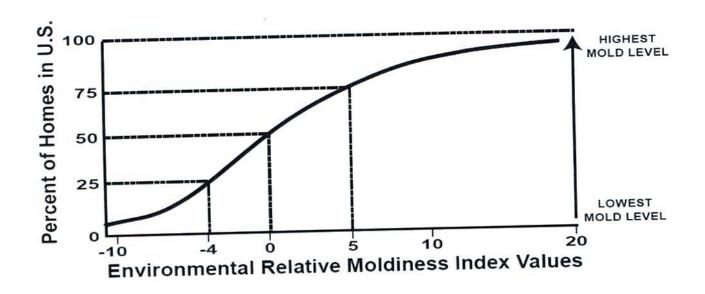
ERMI Interpretation* (see graph and description below)	Level 2	Level 3		
ERMI Value:	0	3	- Alberta	
Sum of the Logs	12.3	13.4		
Rhizopus stolonifer	ND	ND	•	
Penicillium chrysogenum	98	93		N=
Mucor and Rhizopus group	ND	7	-	-
Epicoccum nigrum	2,639	5,561	*	
Cladosporium herbarum	29	26	-	-
Cladosporium cladosporioides II	ND ND	ND	1411	-
Cladosporium cladosporioides I	461	386		-
Aspergillus ustus	ND ND	236 ND		**
Alternaria alternata	540	3	•	-
Acremonium strictum	1		ociis/ mg dust	cells/ mg dus
Group 2	cells/ mg dust	cells/ mg dust	cells/ mg dust	colle/ man dis-
Sample size EPA 36 Species Identification	5mg Dust	5mg Dust	-	_
Sample Location	23	-	2	_
Client Sample ID	KC2626	KC2627	_	85
Lab Sample Number	3758-9	3758-10		

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Or Approved EMSL Signatory

Quano Li



Based on preliminary data published by the US EPA (chart above), the following ERMI levels can help predict whether an indoor environment is moldy. As research progresses, forthcoming data may change this interpretation and further refine the ERMI.

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Client: US EPA

26 W M. L. King Drive

Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call # 4

EMSL Order ID:

370903782

Date Received:

4/22/2009 4/23/2009

Date Analyzed: Date Reported:

4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3782-1	3782-2	3782-3	3782-4
Client Sample ID	KC2632	KC2636	KC2643	KC2644
Sample Location	151	-	1.02040	102044
Sample size	5mg Dust	5mg Dust	Ema Dust	-
EPA 36 Species Identification	The same of the sa	onig Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Aspergillus flavus	ND	ND		
Aspergillus fumigatus	ND ND		ND	ND
Aspergillus niger	8	ND	ND	ND
Aspergillus ochraceus	ND	4	ND	9
Aspergillus penicillioides	ND ND	ND	ND	ND
Aspergillus restrictus	ND ND	ND	51	8
Aspergillus sclerotiorum	ND ND	ND	ND	ND
Aspergillus sydowii	ND ND	12	12	7
Aspergillus unguis	ND ND	6	ND	10
Aspergillus versicolor	10072	ND	1	ND
Eurotium (A.) amstelodami	645	358	269	102
Aureobasidium pullulans	285	15	35	78
Chaetomium globosum	1,557	1,123	1,923	7,154
Cladosporium sphaerospermum	3	5	ND	5
Paecilomyces variotii	10	19	10	2
Penicillium brevicompactum	13	1	ND	ND
Penicillium corylophilum	ND	ND	, ND	ND
Penicillium crustosum (com o	27	ND	12	ND
Penicillium crustosum (group2)	ND	ND	ND	ND
Penicillium purpurogenum	21	ND	ND	ND
Penicillium spinulosum	ND	31	ND	ND
Penicillium variabile	ND	ND	ND	1
Scopulariopsis brevicaulis	1	ND	1	2
Scopulariopsis chartarum	ND	ND	ND	ND
Stachybotrys chartarum	ND	ND	ND	1
Trichoderma viride	ND	5	116	2
Wallemia sebi	21	4	4	20
Sum of the Logs	16.2	13.9	15.0	14.6

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Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

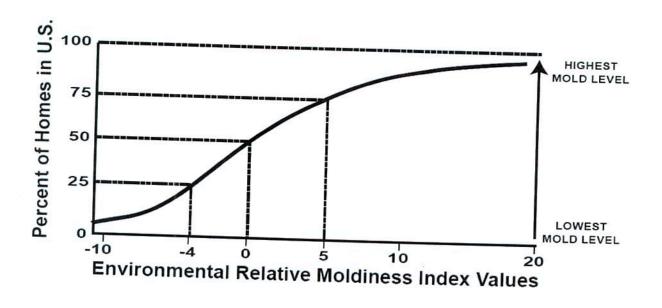
ERMI Interpretation* (see graph and description below)	Level 3	Level 3	Level 3	Level 3
ERMI Value:	4	1	2	11
Sum of the Logs	12.7	12.9	13.4	14.1
Rhizopus stolonifer	ND	ND	ND	ND
Penicillium chrysogenum	99	38	2	3
Mucor and Rhizopus group	4	ND	16	32
Epicoccum nigrum	21	3,646	2,913	3,768
Cladosporium herbarum	25	28	25	56
Cladosporium cladosporioides II	ND	ND	7	6
Cladosporium cladosporioides I	416	862	461	572
Aspergillus ustus	22	2	ND	1
Alternaria alternata	995	359	333	586
Group 2 Acremonium strictum	2	5	9	3
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Sample Location	-	-		- Ema Duet
Client Sample ID	KC2632	KC2636	KC2643	KC2644
Lab Sample Number	3782-1	3782-2	3782-3	3782-4

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Charlie Li Ph.D., Lab Director

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4/20/2009 Project: Kansas City (KC), Call # 4

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3782-5	3782-6	3782-7	3782-8 R63
Client Sample ID	KC2645	KC2651	KC2655	Ros
Sample Location	4.5	-		_
Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Group 1	cells/ flig dust	Cellar Tilg dace	3	200000 NO. 100
Aspergillus flavus	ND	ND	ND	ND
Aspergillus fumigatus	ND	ND	ND	ND
Aspergillus niger	40	13	ND	37
Aspergillus ochraceus	ND ND	ND	ND	ND
Aspergillus penicillioides	52	45	5	ND
Aspergillus restrictus	3	ND	ND	14
Aspergillus sclerotiorum	6	8	3	7
Aspergillus sydowii	11	11	ND	7
Aspergillus yaquis	ND	1	ND	1
Aspergillus unguis	1,134	288	116	304
Aspergillus versicolor Eurotium (A.) amstelodami	184	20	6	1,163
Aureobasidium pullulans	17.693	1,304	304	4,627
Chaetomium globosum	5	3	ND	9
Cladosporium sphaerospermum	11	7	1	9
Paecilomyces variotii	ND	27	ND	8
Penicillium brevicompactum	7	ND	ND	ND
Penicillium corylophilum	60	29	ND	144
Penicillium crustosum (group2)	ND	ND	ND	ND
	ND	ND	ND	ND
Penicillium purpurogenum	ND	32	ND	87
Penicillium spinulosum Penicillium variabile	3	2	ND	2
	1	ND	ND	5
Scopulariopsis brevicaulis	ND	ND	ND	3
Scopulariopsis chartarum	ND ND	ND	ND	ND
Stachybotrys chartarum	24	2	ND	14
Trichoderma viride	17	4	15	251
Wallemia sebi Sum of the Logs	22.6	18.7	7.7	25.6

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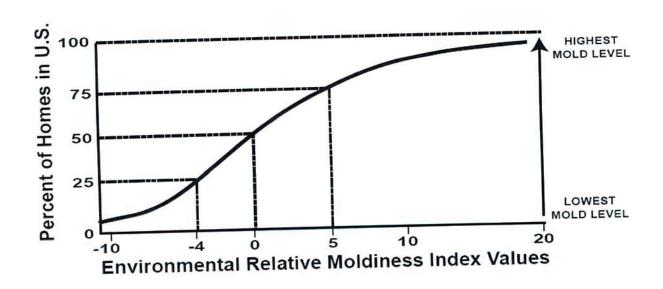
ERMI Interpretation* (see graph and description below)	Level 4	Level 3	Level 3	Level 4
LKWII Value:	6	3	0	12
Sum of the Logs ERMI Value:	16.2	15.5	7.5	13.2
	ND	ND	ND	ND
Rhizopus stolonifer	103	184	ND	5
Penicillium chrysogenum	142	5	ND	1
Mucor and Rhizopus group	2,503	5,940	228	1,922
Epicoccum nigrum	97	35	37	11
Cladosporium cladosporioides II Cladosporium herbarum	ND	ND	ND	414
Cladosporium cladosporioides I	682	1,393	47	ND 414
Aspergillus ustus	1	14	ND	387
Alternaria alternata	490	374	73	15
Acremonium strictum	11	3	ND	K1000-00.15444 APC
Group 2	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
EPA 36 Species Identification	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Sample size	-	-	-	-
Client Sample ID Sample Location	KC2645	KC2651	KC2655	R63
Lab Sample Number	3782-5	3782-6	3782-7	3782-8

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4/23/2009

4/20/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3782-9	3782-10	2-1	
Client Sample ID	R95	R95	-	
Sample Location	-	-	124	-
Sample size	5mg Dust	5mg Dust		ē
EPA 36 Species Identification				-
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Aspergillus flavus	ND	ND		
Aspergillus fumigatus	ND ND	ND ND	-	252
Aspergillus niger	114	108	-	5 .
Aspergillus ochraceus	ND	ND	-	(5)
Aspergillus penicillioides	561		3	. Webi
Aspergillus restrictus	ND ND	2,274	8	-
Aspergillus sclerotiorum	10	ND	5	-
Aspergillus sydowii	14	ND	-	li :=α
Aspergillus unguis	19	42	5.	-
Aspergillus versicolor	HTTPREASON OF THE STATE OF THE	19	1.70	2
Eurotium (A.) amstelodami	7,388	12,994	-	2
Aureobasidium pullulans	276	321	0 .5 0	2
Chaetomium globosum	263	360	(2-0)	2
Cladosporium sphaerospermum	832	124	1=1	2
Paecilomyces variotii	2	4	(*)	2
Penicillium brevicompactum	ND	ND	(*)	22
Penicillium corylophilum	ND	ND	*	
Ponicillium orustosum (sur o)	ND	13		-
Penicillium crustosum (group2)	ND	ND	2	-
Penicillium purpurogenum	2	1		
Penicillium spinulosum	ND	ND	-	127
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	2	5	-	120
Scopulariopsis chartarum	1	2		920
Stachybotrys chartarum	ND	ND	_	
Trichoderma viride	2	ND		-
Wallemia sebi	363	780		- -
Sum of the Logs	23.4	25.2		

107 Haddon Ave., Westmont, NJ 08108 Tel: 800-220-3675 Fax: 856-858-0648

Client: US EPA

26 W M. L. King Drive Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call #4

EMSL Order ID:

370903782

Date Received: Date Analyzed: 4/22/2009 4/23/2009

Date Reported:

4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

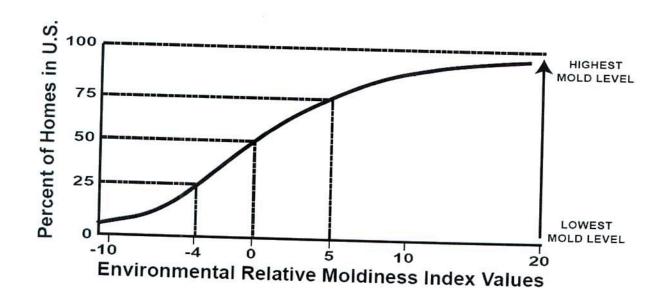
54 44	106 34		-
	106 34	-	-
81 ND	86 ND	2.5	1
8	9	150	12
337 212	335 192	-	-
687	455	-	152
15	6	-	
		-	•
8	10		-
	81 ND 8 337 212 687 15	81 86 ND ND 8 9 337 335 212 192 687 455 15 6 15.0 14.9	81 86 - ND ND - 8 9 - 337 335 - 212 192 - 687 455 - 15 6 - 15.0 14.9 -

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano Li

Or Approved EMSL Signatory



Based on preliminary data published by the US EPA (chart above), the following ERMI levels can help predict whether an indoor environment is moldy. As research progresses, forthcoming data may change this interpretation

ND=None detected; the result is below the analytical detection limit or not present.

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Level 1 = Buildings with an ERMI in the 1st quartile have the lowest likelihood of having a mold problem.

Related published paper: Quantification of Stachybotrys chartarum conidia in indoor dust using real time,

Rapid Monitoring by Quantitative Polymerase Chain Reaction for Pathogenic Aspergillus During Carpet Removal From a Hospital. 2004. Alice N. Neely, PhD, Vince Gallardo, MS, Ed Barth, MS, Richard A. Haugland, PhD, Glenn D. Warden, MD, and Stephen J. Vesper,

Quantitative Polymerase Chain Reaction Analysis of Fungi in Dust From Homes of Infants Who Developed Idiopathic Pulmonary Hemorrhaging. 2004. Vesper, Stephen J. PhD; Varma, Manju PhD; Wymer, Larry J. MS; Dearborn, Dorr G. MD, PhD; Sobolewski, John MS; Hau

Real-time PCR analysis of molds is performed at EMSL Analytical, Inc. in agreement with the Patent License Agreement between EMSL Analytical, Inc. and the United States Environmental Protection Agency's National Exposure and Research Laboratory-CI as well

For further technical information regarding the development of the Environmental Relative Moldiness Index refer to the April 2006 issue of "The Synergist" pages 39-43 or www.epa.gov/iaq

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Client: US EPA

26 W M. L. King Drive

Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call # 4

EMSL Order ID:

370903782

Date Received: Date Analyzed:

4/22/2009 4/23/2009

Date Reported:

4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3782-1	3782-2	3782-3	3782-4
Client Sample ID	KC2632	KC2636	KC2643	
Sample Location	-	-	102043	KC2644
Sample size	5mg Dust	5ma Dust		
EPA 36 Species Identification	AND AN AN AN AN	5mg Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Aspergillus flavus	ND	ND	ND	
Aspergillus fumigatus	ND	ND ND	ND ND	ND
Aspergillus niger	8	4	ND	ND
Aspergillus ochraceus	ND	ND I	ND	9
Aspergillus penicillioides	ND	ND	ND	ND
Aspergillus restrictus	ND	ND	51	8
Aspergillus sclerotiorum	ND	12	ND	ND
Aspergillus sydowii	ND	6	12	7
Aspergillus unguis	ND	ND	ND	10
Aspergillus versicolor	645	358	1	ND
Eurotium (A.) amstelodami	285	15	269 35	102
Aureobasidium pullulans	1,557	1,123		78
Chaetomium globosum	3	5	1,923	7,154
Cladosporium sphaerospermum	10	19	ND	5
Paecilomyces variotii	13	1	10	2
Penicillium brevicompactum	ND ND	ND	ND	ND
Penicillium corylophilum	27	10.25 T	ND	ND
Penicillium crustosum (group2)	ND ND	ND	12	ND
Penicillium purpurogenum		ND	ND	ND
Penicillium spinulosum	21	ND	ND	ND
Penicillium variabile	ND	31	ND	ND
Scopulariopsis brevicaulis	ND	ND	ND	1
Scopulariopsis chartarum	1	ND	1	2
Stachybotrys chartarum	ND	ND	ND	ND
Trichoderma viride	ND	ND	ND	1
Wallemia sebi	ND	5	116	2
	21	4	4	20
Sum of the Logs	16.2	13.9	15.0	14.6

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EMSL Order ID:

370903782 4/22/2009

Date Received: Date Analyzed:

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Date Reported:

4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

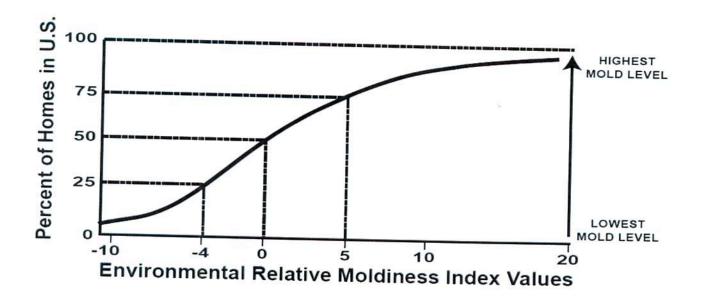
ERMI Interpretation* (see graph and description below)	Level 3	Level 3	Level 3	Level 3
ERMI Value:	4	1	2	1
Sum of the Logs	12.7	12.9	13.4	14.1
Rhizopus stolonifer	ND	ND	ND	ND
Penicillium chrysogenum	99	38	2	3
Mucor and Rhizopus group	4	ND	16	32
Epicoccum nigrum	21	3,646	2,913	3,768
Cladosporium herbarum	25	28	25	56
Cladosporium cladosporioides II	ND	ND	7	6
Cladosporium cladosporioides l	416	862	461	572
Alternaria alternata Aspergillus ustus	22	2	ND	1
Acremonium strictum	995	359	333	586
Group 2	2	5	9	3
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Sample Location	-	-	200 200 - 200 - 700	
Lab Sample Number Client Sample ID	3782-1 KC2632	3782-2 KC2636	KC2643	KC2644

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano Li

Or Approved EMSL Signatory



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Real-time PCR analysis of molds is performed at EMSL Analytical, Inc. in agreement with the Patent License Agreement between EMSL Analytical, Inc. and the United States Environmental Protection Agency's National Exposure and Research Laboratory-CI as well as the Patent License Agreement between EMSL Analytical, Inc. and Applied Biosystems. For further technical information regarding the development of the Environmental Relative Moldiness Index refer to the April 2006 issue of "The Synergist" pages 39-43 or www.epa.gov/iaq EMSL maintains liability limited to cost of analysis. Interpretation of the data contained in this report is the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. The above test report relates only to the items tested. EMSL bears no responsibility for sample collection activities or analytical method limitations.

107 Haddon Ave., Westmont, NJ 08108 Tel: 800-220-3675 Fax: 856-858-0648

Client: US EPA

EMSL Order ID: 370903758 26 W M. L. King Drive Date Received: 4/22/2009 Cincinnati, OH 45268 Date Analyzed: Attention: Dr. Steve Vesper 4/23/2009 Date Reported: 4/24/2009

Project: Kansas City (KC), Call #3

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-1	3758-2	3758-3	0750 :
Client Sample ID	KC2597	KC2598	1000	3758-4
Sample Location		102390	KC2602	KC2607
Sample size	5mg Dust			15
EPA 36 Species Identification	Jing Dust	5mg Dust	5mg Dust	5mg Dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Aspergillus flavus	ND	NID		All
Aspergillus fumigatus	ND ND	ND	ND	ND
Aspergillus niger	17	ND	ND	ND
Aspergillus ochraceus	ND	6	ND	91
Aspergillus penicillioides	ND ND	ND	ND	533
Aspergillus restrictus	ND ND	35	ND	ND
Aspergillus sclerotiorum		ND	4	4
Aspergillus sydowii	15	8	14	7
Aspergillus unguis	7	ND	167	75
Aspergillus versicolor	4	2	3	13
Eurotium (A.) amstelodami	288	93	3,138	570
Aureobasidium pullulans	139	58	437	991
Chaetomium globosum	1,368	1,261	4,323	12,167
Cladosporium sphaerospermum	6	3	20	10
Paecilomyces variotii	32	8	88	93
Penicillium braviagement	4	9	13	10
Penicillium brevicompactum	ND	ND	ND	ND
Penicillium corylophilum	139	ND	ND	304
Penicillium crustosum (group2)	ND	ND	ND	ND
Penicillium purpurogenum	ND	ND	ND	2
Penicillium spinulosum	ND	ND	ND	43
Penicillium variabile	2	ND	9	5
Scopulariopsis brevicaulis	2	ND	6	ND
Scopulariopsis chartarum	ND	ND	1	ND
Stachybotrys chartarum	ND	ND	11	ND ND
Trichoderma viride	ND	17	ND	ND ND
Wallemia sebi	234	58	118	75
Sum of the Logs	19.5	15.6	23.4	30.0

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26 W M. L. King Drive Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call #3

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Date Received: Date Analyzed: 4/22/2009 4/23/2009

Date Reported: 4/24/2009

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based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

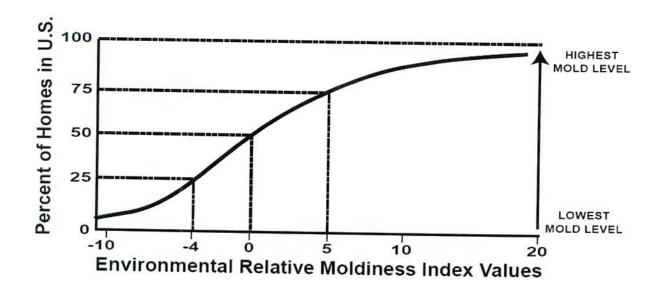
ERMI Interpretation*	Level 3	Level 3	Level 4	Level 4
ERMI Value:	5	2	9	17
Sum of the Logs	14.8	13.5	14.4	12.9
Rhizopus stolonifer	ND	ND	ND	ND
Penicillium chrysogenum	194	72	8	5
Mucor and Rhizopus group	302	6	ND	76
Epicoccum nigrum	531	1,227	4,938	ND
Cladosporium herbarum	14	23	36	36
Cladosporium cladosporioides II	ND	ND	7	10
Cladosporium cladosporioides l	428	498	545	595
Aspergillus ustus	1	ND	14	14
Acremonium strictum Alternaria alternata	387	479	1,109	842
Group 2	7	11	3	8
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
Sample Location			(#)	
	KC2597	KC2598	KC2602	KC2607
Lab Sample Number Client Sample ID	3758-1 KC2597	3758-2 KC2598	3758-3 KC2602	375 KC2

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano L:

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Cincinnati, OH 45268

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Project: Kansas City (KC), Call #3

EMSL Order ID:

370903758

Date Received:

4/22/2009

Date Analyzed: Date Reported: 4/23/2009 4/24/2009

4/20/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number	3758-5	3758-6	3758-7	3758-8
Client Sample ID	KC2618	KC2620	KC2621	KC2624
Sample Location	-	150	-	2
Sample size	5mg Dust	5mg Dust	5mg Dust	5mg Dust
EPA 36 Species Identification		Week 100 200 200 200		salla/ ma dust
Group 1	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Group 1			20/02	2000000
Aspergillus flavus	ND	ND	ND	ND
Aspergillus fumigatus	ND	ND	ND	ND
Aspergillus niger	48	15	110	2
Aspergillus ochraceus	ND	ND	92	ND
Aspergillus penicillioides	ND	ND	ND	11
Aspergillus restrictus	6	ND	12	ŅD
Aspergillus sclerotiorum	ND	ND	ND	10
Aspergillus sydowii	131	ND	122	7
Aspergillus unguis	ND	2	5	2
Aspergillus versicolor	1,698	165	2,721	194
Eurotium (A.) amstelodami	643	100	140	23
Aureobasidium pullulans	5,090	5,195	33,327	7,154
Chaetomium globosum	30	5	20	2
Cladosporium sphaerospermum	97	20	39	6
Paecilomyces variotii	7	ND	431	1
Penicillium brevicompactum	3	ND	ND	ND
Penicillium corylophilum	19	ND	120	7
Penicillium crustosum (group2)	ND	ND	ND	ND
Penicillium purpurogenum	ND	ND	ND	ND
Penicillium spinulosum	106	ND	89	ND
Penicillium variabile	20	1	30	ND
Scopulariopsis brevicaulis	2	3	ND	ND
Scopulariopsis chartarum	3	ND	2	ND
Stachybotrys chartarum	5	ND	2	ND
Trichoderma viride	38	ND	62	1
Wallemia sebi	130	72	64	8
Sum of the Logs	28.9	13.9	33.2	13.8

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Client: US EPA

| EMSL Order ID: 370903758 | 26 W M. L. King Drive | Date Received: 4/22/2009 | Cincinnati, OH 45268 | Date Analyzed: 4/23/2009 | Attention: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 | Cincinnation: Dr. Steve Vesper | Date Reported: 4/24/2009 |

Project: Kansas City (KC), Call #3

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

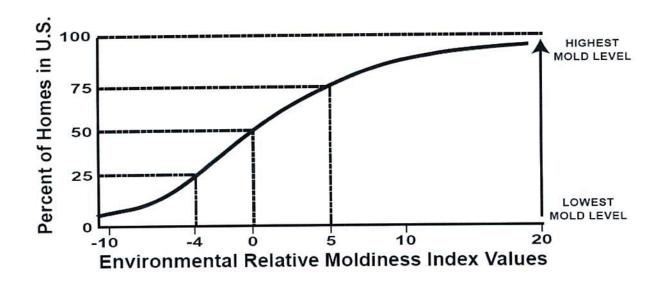
ERMI Interpretation*	Level 4	Level 3	17 Level 4	-1 Level 2
ERMI Value:	11	2		
Sum of the Logs	17.6	11.9	16.5	15.1
Rhizopus stolonifer	ND	1	ND	4
Penicillium chrysogenum	214	131	8	3
Mucor and Rhizopus group	63	1	20	1
Epicoccum nigrum	4,654	60	3,946	17,071
Cladosporium herbarum	49	25	34	80
Cladosporium cladosporioides II	ND	ND	7	ND.
Cladosporium cladosporioides I	746	678	1,908	1,344
Aspergillus ustus	10	ND	27	6
Alternaria alternata	972	827	907	977
Acremonium strictum	17	6	5	10
Group 2	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dus
EPA 36 Species Identification	Jing Dust	5mg Dust	5mg Dust	5mg Dust
Sample size	5mg Dust	- - D 4		_
Sample Location	NC2010	KC2620	KC2621	KC2624
Lab Sample Number Client Sample ID	3758-5 KC2618	3758-6	3758-7	3758-8

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano L

Or Approved EMSL Signatory



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Client: US EPA

26 W M. L. King Drive

Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call #3

EMSL Order ID:

370903758

Date Received: Date Analyzed:

4/22/2009 4/23/2009

Date Reported:

4/23/2009 4/24/2009

4/20/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Test Code:M050)

Lab Sample Number Client Sample ID	3758-9 KC2626	3758-10	-	-
Sample Location	NC2626	KC2627	-	-
VENDANDER DE NE ®CHOUGHER DE SENDEN DE DE NE NE DE NE DE SENDEN DE LE DE NE D		-	2	
Sample size	5mg Dust	5mg Dust		-
EPA 36 Species Identification	cells/ mg dust	colle/ man divek		
Group 1	cells/ flig dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Aspergillus flavus	ND	ND		655
Aspergillus fumigatus	ND	ND ND		5.
Aspergillus niger	6	14		150
Aspergillus ochraceus	ND	ND		I) 1-28
Aspergillus penicillioides	22	30		15.7
Aspergillus restrictus	ND	ND	_	
Aspergillus sclerotiorum	ND	2	_	
Aspergillus sydowii	ND	21	_	_
Aspergillus unguis	ND	ND	-	_
Aspergillus versicolor	618	145	-	-
Eurotium (A.) amstelodami	30	91	-	-
Aureobasidium pullulans	2,407	1,589		_
Chaetomium globosum	ND	3	120	
Cladosporium sphaerospermum	16	4	100	× ×
Paecilomyces variotii	ND	36	120	2
Penicillium brevicompactum	ND	ND		2
Penicillium corylophilum	ND	ND	-	2
Penicillium crustosum (group2)	ND	ND		2
Penicillium purpurogenum	ND	ND		_
Penicillium spinulosum	ND	28		-
Penicillium variabile	ND	2	(*)	5 1
Scopulariopsis brevicaulis	ND	ND		520
Scopulariopsis chartarum	1	ND	*	1961
Stachybotrys chartarum	ND	ND		i e
Trichoderma viride	ND	4		13 - 2
Wallemia sebi	14	2		
Sum of the Logs	12.1	16.7		3.53

107 Haddon Ave., Westmont, NJ 08108 Tel: 800-220-3675 Fax: 856-858-0648

Client: US EPA

26 W M. L. King Drive Cincinnati, OH 45268

Attention: Dr. Steve Vesper

Project: Kansas City (KC), Call #3

EMSL Order ID:

370903758

Date Received:

4/22/2009 4/23/2009

Date Analyzed: Date Reported:

4/24/2009

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR) (EMSL Method:M050)

based on USA EPA SOP MERB-020, Revision No. 3, 7/11/02

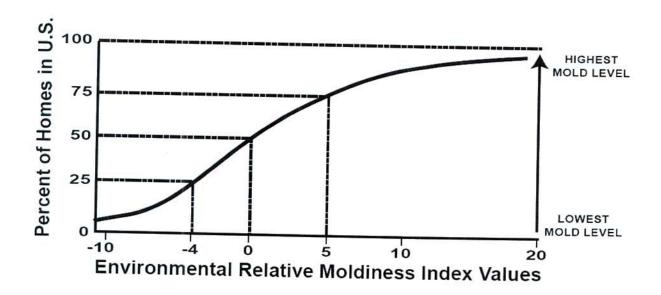
Lab Sample Number	3758-9	3758-10		-
Client Sample ID	KC2626	KC2627		-
Sample Location	-	50		-
Sample size	5mg Dust	5mg Dust	-	2
EPA 36 Species Identification	cells/ mg dust	cells/ mg dust	cells/ mg dust	cells/ mg dust
Group 2	Cells/ Hig dust	cells/ Trig dust	conditing date	50ms, 111.9 mast
Acremonium strictum	1	3	X-2	
Alternaria alternata	540	236		*
Aspergillus ustus	ND	ND	100	*
Cladosporium cladosporioides I	461	386	- AS	-
Cladosporium cladosporioides II	ND	ND	2:	-
Cladosporium herbarum	29	26	2	-
Epicoccum nigrum	2,639	5,561	-	121
Mucor and Rhizopus group	ND	7	-	-
Penicillium chrysogenum	98	93		-
Rhizopus stolonifer	ND	ND		3.1
Sum of the Logs	12.3	13.4	-	-
ERMI Value:	0	3	-	-
ERMI Interpretation* (see graph and description below)	Level 2	Level 3	=	-

ND=None detected; the result is below the analytical detection limit or not present.

Charlie Li Ph.D., Lab Director

Quano Li

Or Approved EMSL Signatory



Based on preliminary data published by the US EPA (chart above), the following ERMI levels can help predict whether an indoor environment is moldy. As research progresses, forthcoming data may change this interpretation and further refine the ERMI.

ND=None detected; the result is below the analytical detection limit or not present.

Level 4 = Buildings with an ERMI in the 4th quartile have the greatest likelihood of having a mold problem.

Level 3 = Buildings with an ERMI in the 3rd quartile have a greater likelihood of having a mold problem.

Level 2 = Buildings with an ERMI in the 2nd quartile have a lower likelihood of having a mold problem.

Level 1 = Buildings with an ERMI in the 1st quartile have the lowest likelihood of having a mold problem.

Related published paper: Quantification of Stachybotrys chartarum conidia in indoor dust using real time,

Rapid Monitoring by Quantitative Polymerase Chain Reaction for Pathogenic Aspergillus During Carpet Removal From a Hospital. 2004. Alice N. Neely, PhD, Vince Gallardo, MS, Ed Barth, MS, Richard A. Haugland, PhD, Glenn D. Warden, MD, and Stephen J. Vesper,

Quantitative Polymerase Chain Reaction Analysis of Fungi in Dust From Homes of Infants Who Developed Idiopathic Pulmonary Hemorrhaging. 2004. Vesper, Stephen J. PhD; Varma, Manju PhD; Wymer, Larry J. MS; Dearborn, Dorr G. MD, PhD; Sobolewski, John MS: Hau

Real-time PCR analysis of molds is performed at EMSL Analytical, Inc. in agreement with the Patent License Agreement between EMSL Analytical, Inc. and the United States Environmental Protection Agency's National Exposure and Research Laboratory-CI as well

For further technical information regarding the development of the Environmental Relative Moldiness Index refer to the April 2006 issue of "The Synergist" pages 39-43 or www.epa.gov/iaq

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